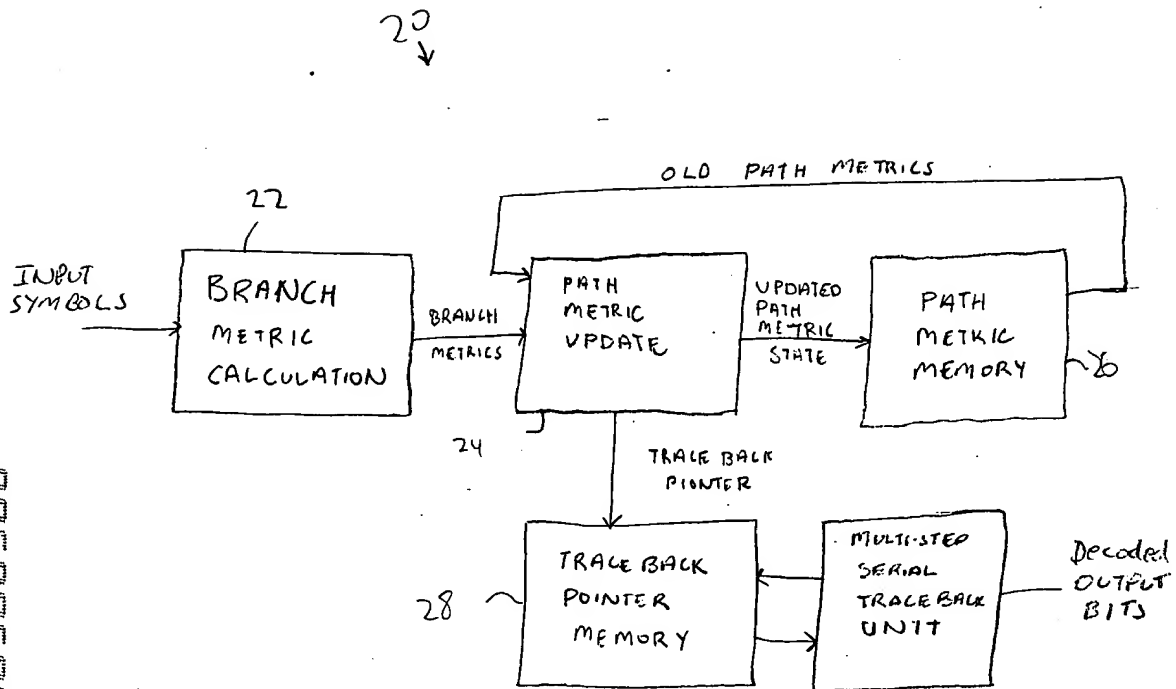


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(CONVENTIONAL)  
FIGURE 1

40  
↓

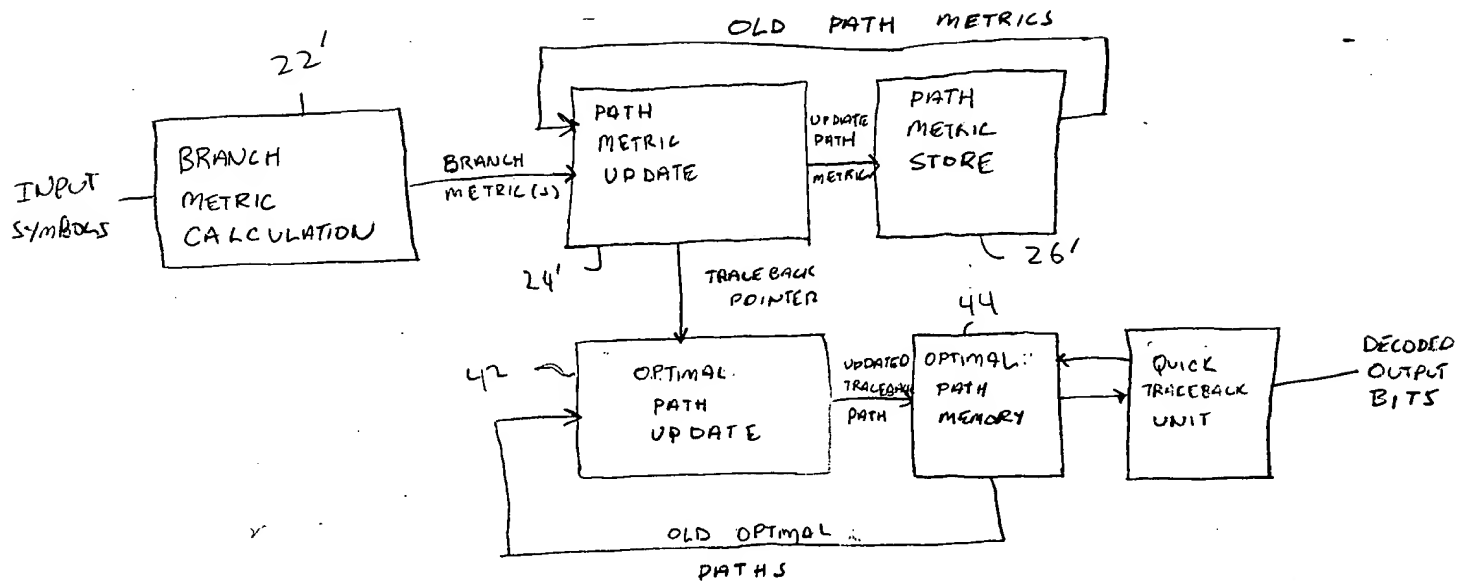


FIGURE 2

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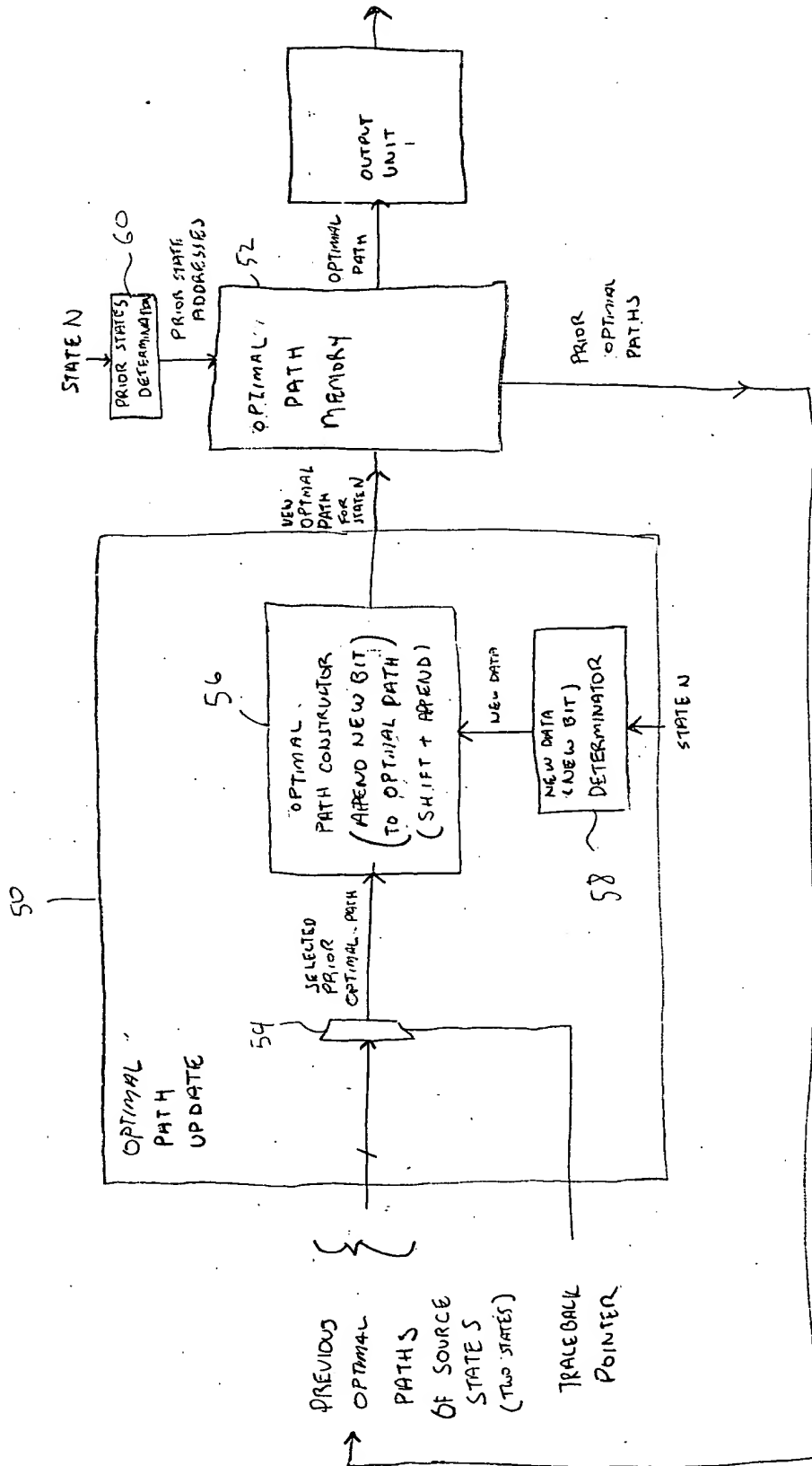


FIGURE 3

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16-State Convolutional Encoder State Transition Graph  
FOR RATE 1/2 CONVOLUTION CODE

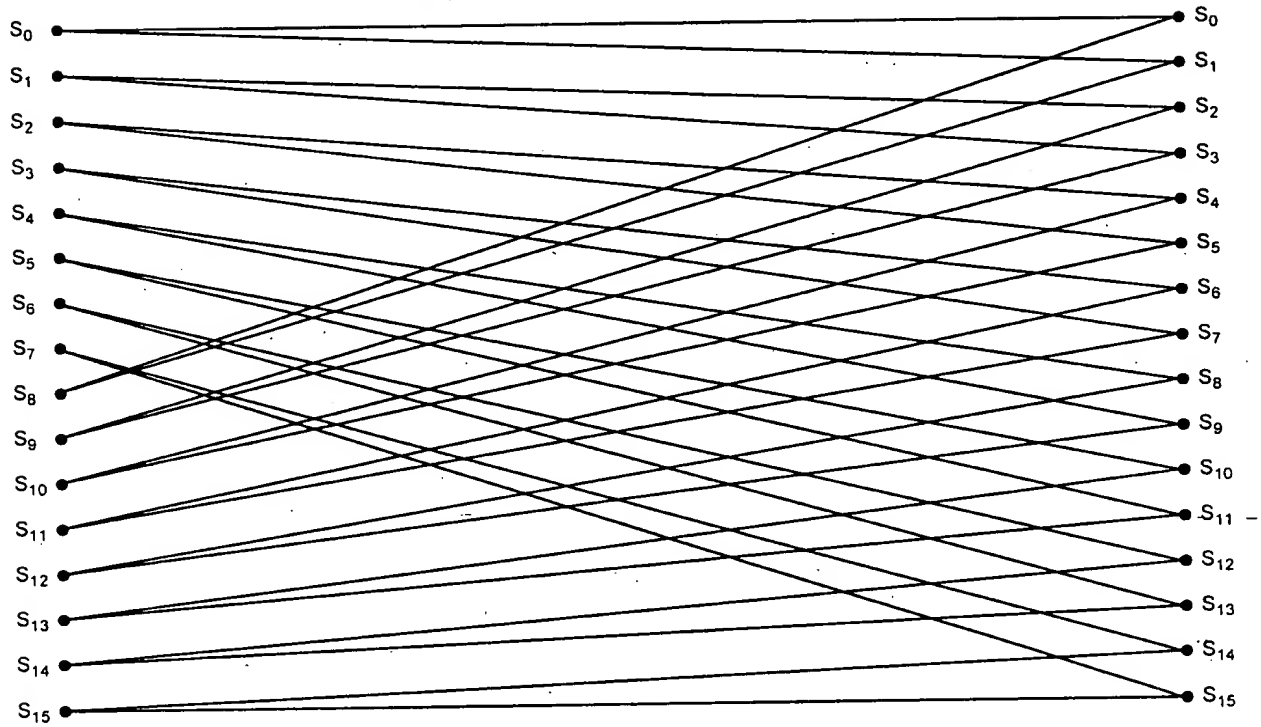


FIGURE 4



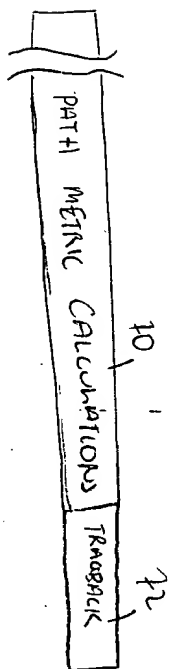


FIGURE 6A  
(CONVENTIONAL)

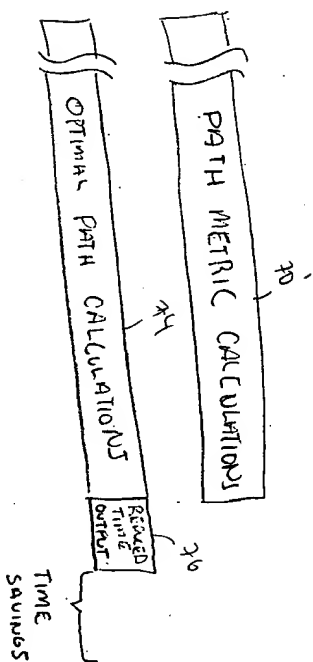


FIGURE 6B

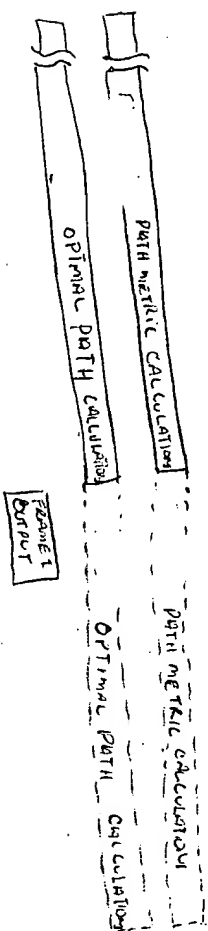


FIGURE 6C

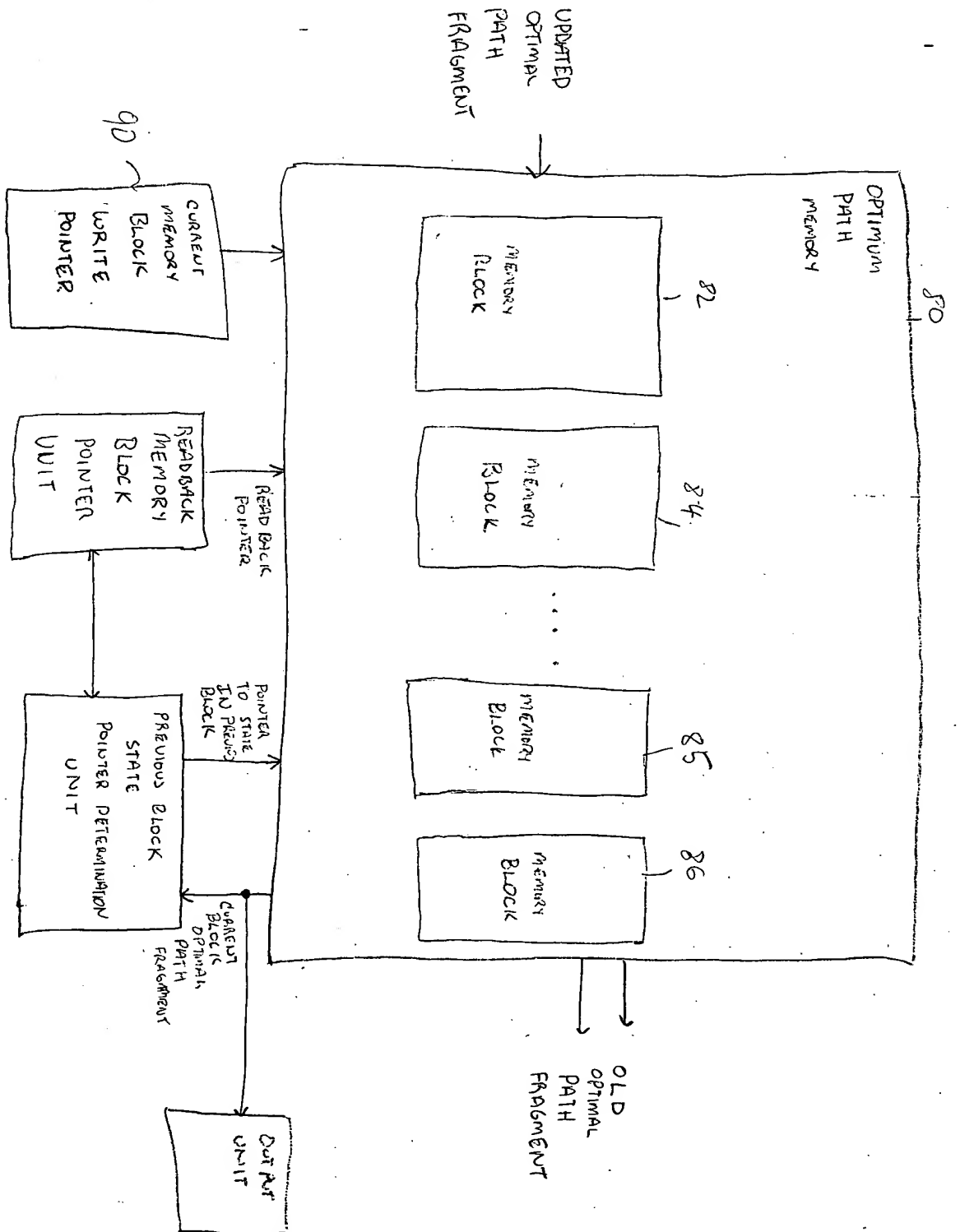


Figure 7

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00720T" 86986960

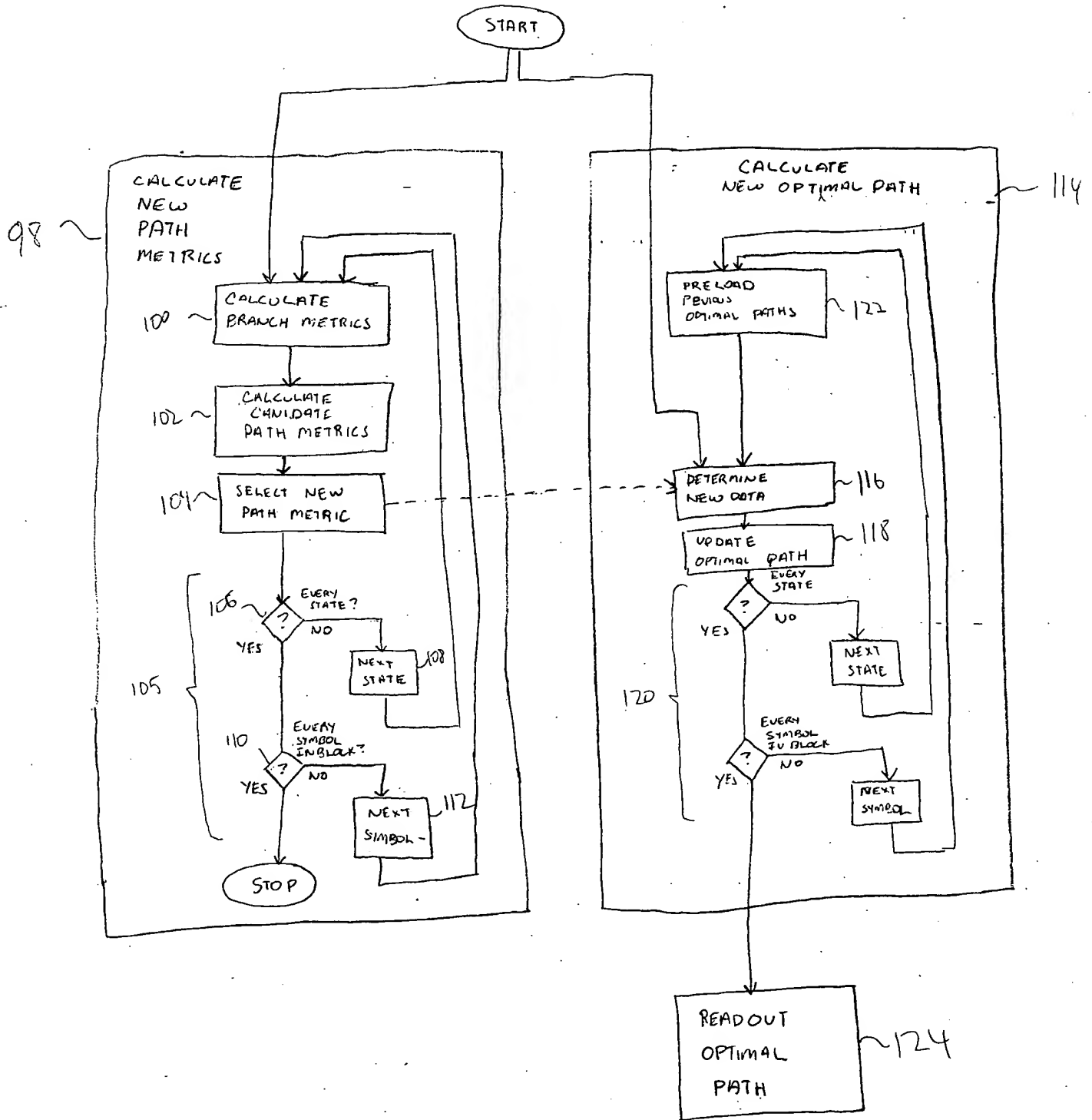


FIGURE 8



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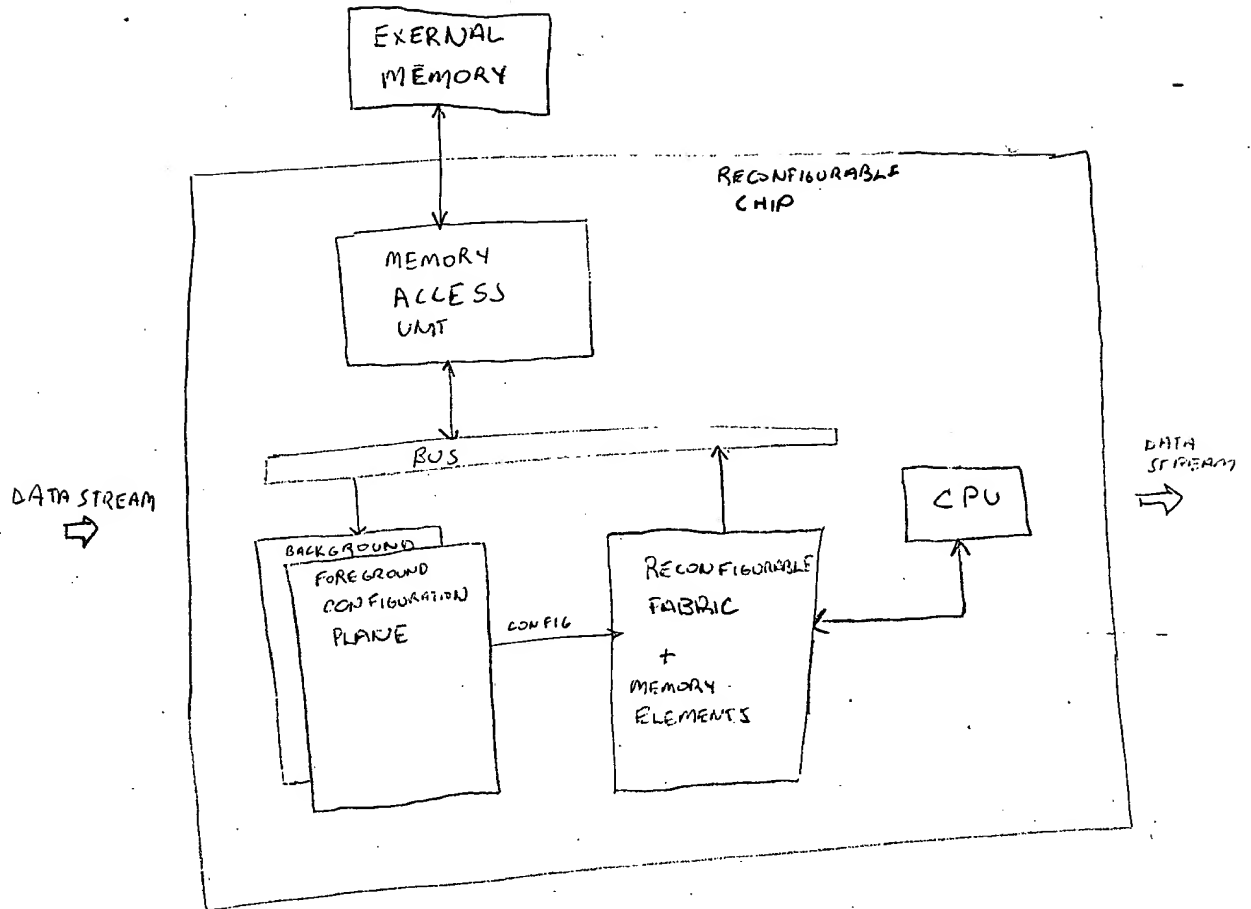


FIGURE 9

09698698-102700

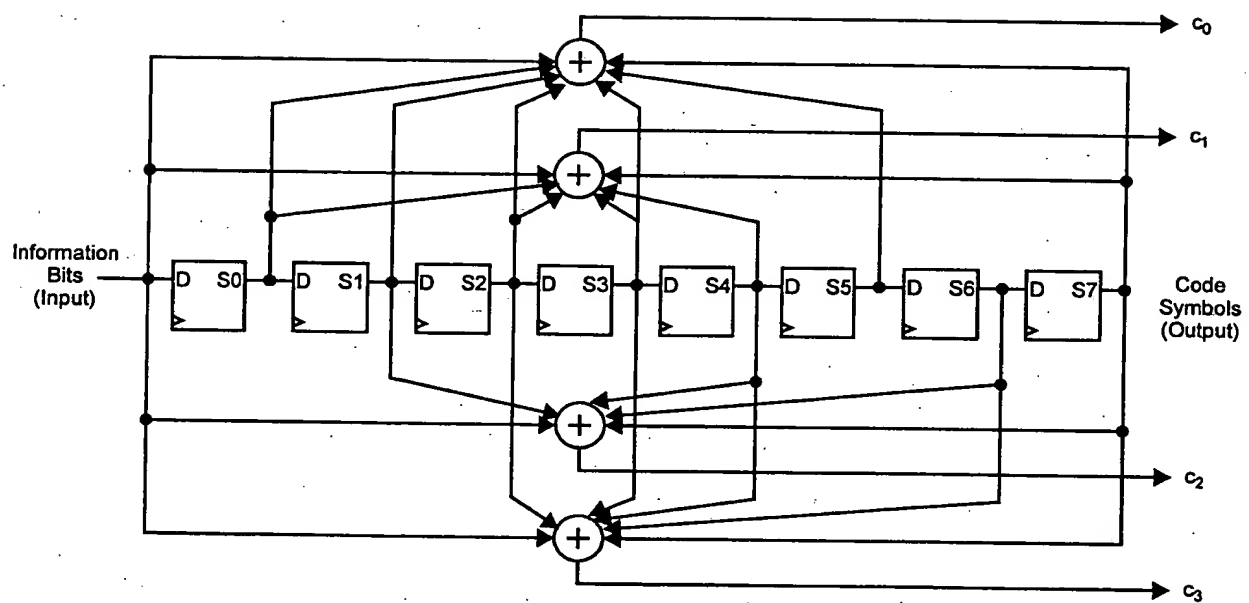


FIGURE 10

09698698 102700

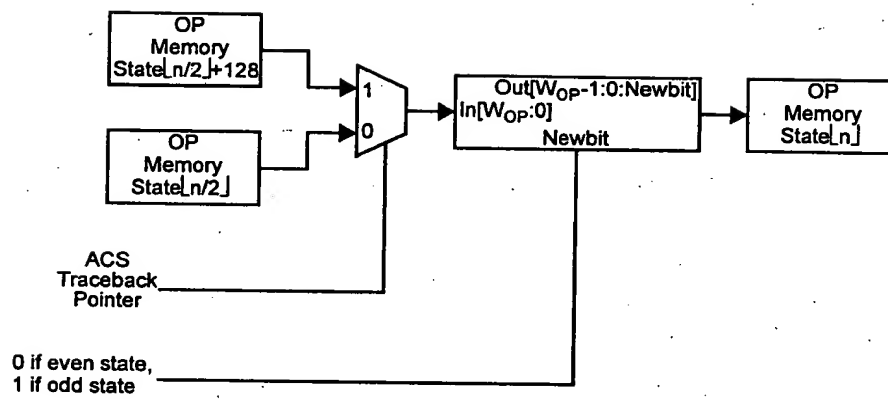


FIGURE 11

Block diagram of the Branch Metric Sub-component. The diagram shows an Input Buffer providing a 16-bit signal  $X_n$  to a Symbol to Metric Converter RAM. The RAM outputs two 16-bit signals,  $+X_n$  and  $-X_n$ . These signals are processed through four parallel stages. Each stage consists of a Down Shift 16 block, followed by a Register, and then a 2-to-1 multiplexer. The multiplexers take inputs from the registers and the original signals, and their outputs are masked with 0x000000FF. The masked results are then added ( $\Sigma$ ) to the original signals, and the results are stored in registers. Finally, the results from all four stages are added ( $\Sigma$ ) to produce the Branch Metric.

FIGURE 12

Figure 1 illustrates the block diagram of the Viterbi algorithm. The process involves two parallel paths for calculating path metrics and selecting the minimum value.

**Top Path:**

- Inputs: Path Metric State  $n$  and Branch Metric State  $n$ , Symbol 1.
- Operation: Sum each 16-bit word ( $\Sigma$ ).
- Storage: The result is stored in a Register.

**Bottom Path:**

- Inputs: Path Metric State  $n + N_S/2$  and Branch Metric State  $n + N_S/2$ , Symbol 0.
- Operation: Sum each 16-bit word ( $\Sigma$ ).
- Storage: The result is stored in a Register.

**Selection and Output:**

- The outputs from the two registers are fed into a MIN16 block.
- The MIN16 block performs the operation: Select minimum value from each pair.
- The outputs of the MIN16 block are:
  - Next Path Metric State  $2n$
  - Next Path Metric State  $2n+1$
  - Traceback Pointer State  $2n$
  - Traceback Pointer State  $2n+1$

FIGURE 13

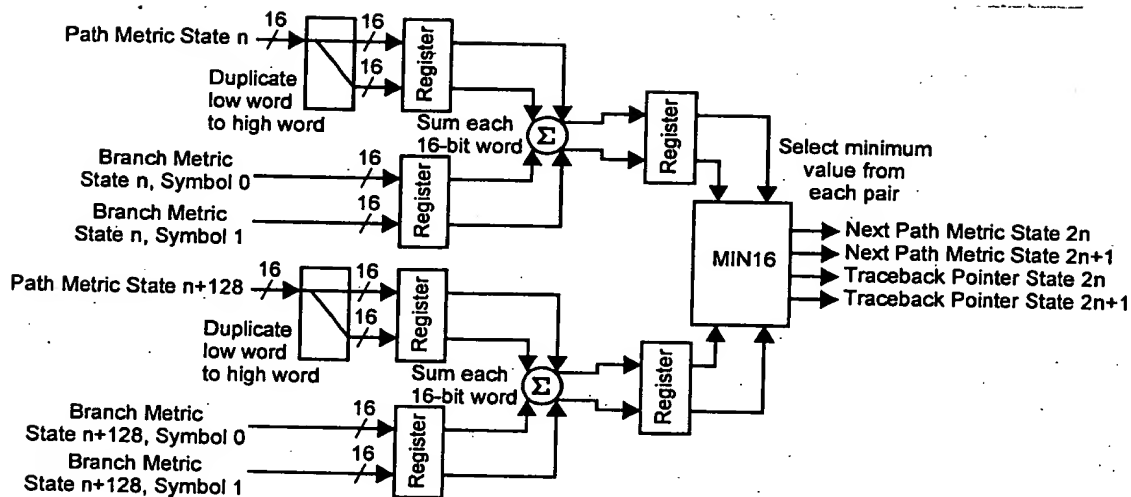
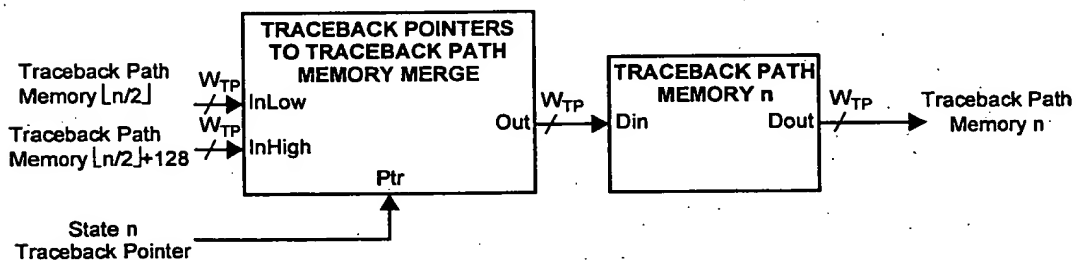


FIGURE 14



TRACEBACK PATH MEMORY SELECT TRUTH TABLE	
Sel	Out
0	Ptr.(TP Mem [n/2])[14:0]
1	Ptr.(TP Mem [n/2]+128)[14:0]

FIGURE 15.

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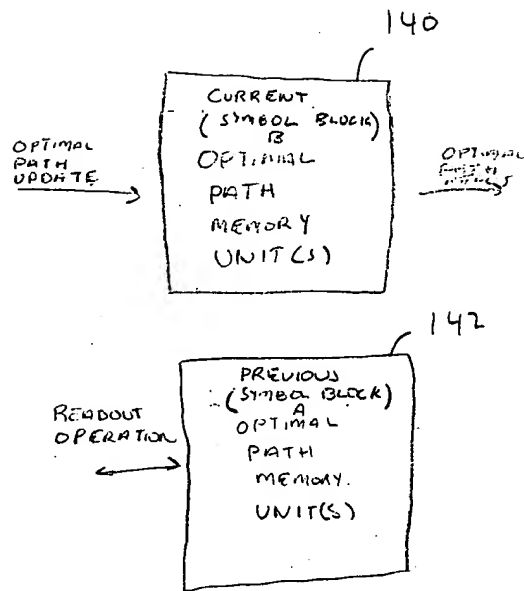


FIGURE 16A

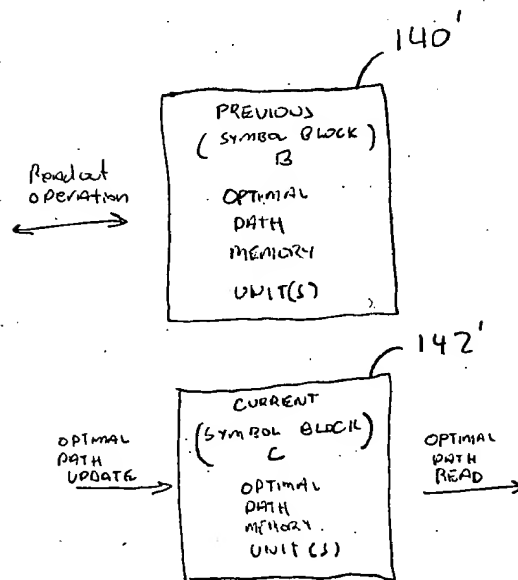


FIGURE 16B